pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHWEST REGIONAL OFFICE – AIR QUALITY PROGRAM **MEMO**

TO Mark R. Gorog, P.E./MRG
Program Manager
Air Quality Program

FROM Bradley D. Spayd/BDS
Air Quality Engineer
Air Quality Program

THRU Thomas J. Joseph, P.E./TJJ
Environmental Engineer Manager
Air Quality Program

DATE June 27, 2023

RE *Review Memorandum of Reasonably Available Control Technology (RACT III) Application*
OMNOVA North America, Inc./Jeanette Plant
City of Jeannette
Westmoreland County

APS 1084222 **AUTH** 1442984 **PF** 272282

I.) Background:

On December 16, 2022, SE Technologies, LLC submitted a Reasonably Available Control Technology III (RACT III) application on behalf of OMNOVA North America, Inc. ("Omnova") to the Department of Environmental Protection ("Department") for their facility located in the City of Jeannette, Westmoreland County. On January 3, 2023, the application was considered administratively complete.

Omnova manufactures and warehouses polymer-based film and composite materials and was formerly known as OMNOVA Solutions, LLC, and historically as GenCorp Polymer Products and Decorative Products Group. The manufacturing activities at this facility involve making plastic films by combining raw materials such as PVC resin, plasticizer oils, fillers, stabilizers, and pigments, and then squeezing the fused polymer through a series of heated rollers in a process called calendering. Post-calendering (or finishing) operations include embossing and/or laminating multiple plies of film or film and fabric together to create the finished product. Examples of products made at this facility include shower pan liners, swimming pool liners, floor coverings, and wrestling mats. Air contamination sources at this facility are shown in Table I below.

No modifications or changes were made to these sources after October 24, 2016. The U.S. EPA approved the RACT II SIP requirements for this facility on January 25, 2022, in 87 FR 3670 under §52.2064(h)(6). As noted, on December 16, 2022, SE Technologies, LLC submitted a Reasonably Available Control Technology III (RACT III) application on behalf of Omnova to the Department specifying that their RACT III proposal is the same as their RACT II proposal.

Table I:
Air Contamination Sources and Air Cleaning Devices

Source ID	Description	Make/Model	Rating/Throughput	Control Device	Exhaust Stack	Installation Date
035	New Boiler 1	300-BHP Burnham Industrial Mfr./LN3P-300-50-G-10	12.5 MMBtu/hr 12.14 MCF/hr	---	200°F/25% moisture/301 scfm	11/01/2002
036	New Boiler 2	300-BHP Burnham Industrial Mfr./LN3P-300-50-G-10	12.5 MMBtu/hr 12.14 MCF/hr	---	200°F/25% moisture/301 scfm	11/01/2002
111	Calender Line 1	---	3,836 tons	21,544 scfm Camcorp Dust Collector[a]	92°F/0% moisture/12,962 scfm	01/01/1972
112	Calender Line 2	---	2,397 tons		68°F/10% moisture/11,760 scfm	01/01/1972
114	Calender Line 4	---	3,836 tons		92°F/10% moisture/14,952 scfm	01/01/1972
221	Embosser/Laminator 1	---	---	---	104°F/10% moisture/6,902 scfm	01/01/1963
222	Embosser/Laminator 2	---	---	---	104°F/10% moisture/6,902 scfm	01/01/1963
232	Liquid Raw Material Storage	---	---	---	Ambient	Replaced in early 2000s
241	Resin Silos 1-6	Micropul	---	Bin Vent Filters - Resin Silos 1-6	Ambient	01/01/1971
243	Resin Solids Weigh and Handling	FlexKleen 84CTBC	---	F1-F4 Bag Filters – Resin Holding Hoppers	Ambient	01/01/1971
251	Powerhouse Generator (50-HP)	---	0.130 MMBtu/hr 1.0 gal/hr diesel fuel	---	70°F/10% moisture/2,835 scfm	Unknown
252	Direct-Fired Make-Up Air Units 1-3	Applied Air DFIM-225-HRS	5.165 MMBtu/hr	---	Direct-Fired Make-Up Air Units 1-3	Applied Air DFIM-225-HRS
300	AZO Scrap System	---	---	13,500 scfm Camcorp Cam-Airo Cartridge Collector	70°F/1% moisture/13,500 scfm	Unknown
301	Misc. Raw Material Handling	Manual Add Stations	---	21,544 scfm Camcorp Dust Collector	70°F/1% moisture/21,544 scfm	10/02/2018
		Manual Material Handling	---			
		DCE Unicell	---			
Misc.	Parts Washers	Two (2) parts washers	30-gal each	---	---	---

II.) RACT III:

As part of the Reasonably Available Control Technology (RACT) regulations codified under 25 Pa. Code §129.111—§129.115 (relating to additional RACT requirements for major sources of NO_x and VOCs for the 2015 ozone NAAQS) (RACT III), the Pennsylvania Department of Environmental Protection (Department) has established a method under §129.114(i) (relating to alternative RACT proposal and petition for alternative compliance schedule) for an applicant to demonstrate that the alternative RACT compliance requirements incorporated under §129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule) (RACT II) for a source that commenced operation on or before October 24, 2016, and which remain in force in the applicable operating permit continue to be RACT under RACT III as long as no modifications or changes were made to the source after October 24, 2016. The date of October 24, 2016, is the date specified in §129.99(i)(1) by which written RACT proposals to address the 1997 and 2008 8-hour ozone National Ambient Air Quality Standards (NAAQS) were due to the Department or the appropriate approved local air pollution control agency from the owner or operator of an air contamination source located at a major NO_x emitting facility or a major VOC emitting facility subject to §129.96(a) or (b) (relating to applicability).

The procedures to demonstrate that RACT II is RACT III are specified in §129.114(i)(1)(i), §129.114(i)(1)(ii) and §129.114(i)(2), that is, subsection (i), paragraphs (1) and (2). An applicant may submit an analysis, certified by the responsible official, that the RACT II permit requirements remain RACT for RACT III by following the procedures established under subsection (i), paragraphs (1) and (2).

Paragraph (1) establishes cost effectiveness thresholds of $7,500 per ton of NO_x emissions reduced and $12,000 per ton of VOC emissions reduced as ‘‘screening level values’’ to determine the amount of analysis and due diligence that the

applicant shall perform if there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis. Paragraph (1) has two subparagraphs.

Subparagraph (i) under paragraph (1) specifies that the applicant that evaluates and determines that there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis and that each technically feasible air cleaning device, air pollution control technology or technique evaluated for the alternative RACT requirement or RACT emission limitation approved by the Department (or appropriate approved local air pollution control agency) under §129.99(e) had a cost effectiveness equal to or greater than $7,500 per ton of NO_x emissions reduced or $12,000 per ton of VOC emissions reduced shall include the following information in the analysis:

- A statement that explains how the owner or operator determined that there is no new pollutant specific air cleaning device, air pollution control technology or technique available.
- A list of the technically feasible air cleaning devices, air pollution control technologies or techniques previously evaluated under RACT II.
- A summary of the economic feasibility analysis performed for each technically feasible air cleaning device, air pollution control technology or technique in the previous bullet and the cost effectiveness of each technically feasible air cleaning device, air pollution control technology or technique as submitted previously under RACT II.
- A statement that an evaluation of each economic feasibility analysis summarized in the previous bullet demonstrates that the cost effectiveness remains equal to or greater than $7,500 per ton of NO_x emissions reduced or $12,000 per ton of VOC emissions reduced.

Subparagraph (ii) under paragraph (1) specifies that the applicant that evaluates and determines that there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis and that each technically feasible air cleaning device, air pollution control technology or technique evaluated for the alternative RACT requirement or RACT emission limitation approved by the Department (or appropriate approved local air pollution control agency) under §129.99(e) had a cost effectiveness less than $7,500 per ton of NO_x emissions reduced or $12,000 per ton of VOC emissions reduced shall include the following information in the analysis:

- A statement that explains how the owner or operator determined that there is no new pollutant specific air cleaning device, air pollution control technology or technique available.
- A list of the technically feasible air cleaning devices, air pollution control technologies or techniques previously evaluated under RACT II.
- A summary of the economic feasibility analysis performed for each technically feasible air cleaning device, air pollution control technology or technique in the previous bullet and the cost effectiveness of each technically feasible air cleaning device, air pollution control technology or technique as submitted previously under RACT II.
- A statement that an evaluation of each economic feasibility analysis summarized in the previous bullet demonstrates that the cost effectiveness remains less than $7,500 per ton of NO_x emissions reduced or $12,000 per ton of VOC emissions reduced.
- A new economic feasibility analysis for each technically feasible air cleaning device, air pollution control technology or technique.

Paragraph (2) establishes the procedures that the applicant evaluates and determines that there is a new or upgraded pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis shall follow.

- Perform a technical feasibility analysis and an economic feasibility analysis in accordance with §129.92(b) (relating to RACT proposal requirements).
- Submit that analysis to the Department (or appropriate approved local air pollution control agency) for review and approval.

The applicant shall also provide additional information requested by the Department (or appropriate approved local air pollution control agency) that may be necessary for the evaluation of the analysis submitted under §129.114(i).

Sources 111, 112, 114, 221, and 222, three (3) calender lines and two (2) embosser/laminator lines, respectively, were subject to a case-by-case RACT II analysis for VOCs. The facility is not a major source of NOx. Sources 35 and 36, the two (2) boilers, were subject to presumptive RACT II requirements under 25 Pa. Code §129.97. All other air contamination sources currently located at this facility were exempt from RACT II requirements due to having a potential-to-emit of VOCs of less than 1.0 ton per year. The five (5) aforementioned sources subject to the RACT II requirements under 25 Pa. Code §129.99 that commenced operation on or before October 24, 2016, have not been modified or changed since that time. Consequently, per 25 Pa. Code §129.114(i), continuing compliance with the previously established case-by-case RACT II requirements assures compliance with RACT III requirements.

Table II:
Air Contamination Source RACT III Applicability

Source ID	Source Name	VOC PTE	Subject to RACT III?	RACT III provision
35	New Boiler 1	0.295	No	§129.111(c)
36	New Boiler 2	0.295	No	§129.111(c)
111	Calendar Line 1	35.280	Yes	§129.114(i)(1)(i)
112	Calendar Line 2	34.440	Yes	§129.114(i)(1)(i)
114	Calendar Line 4	35.280	Yes	§129.114(i)(1)(i)
221	Embosser/Laminator 1	3.955	Yes	§129.114(i)(1)(i)
222	Embosser/Laminator 2	3.955	Yes	§129.114(i)(1)(i)
232	Liquid Raw Material Storage	Neg.	No	§129.111(c)
241	Resin Silos 1-6	Neg.	No	§129.111(c)
243	Resin Solids Weigh and Handling	Neg.	No	§129.111(c)
251	Powerhouse Generator (50 HP)	0.001	No	§129.111(c)
252	Direct Fired Make Up Air Units 1-3	0.122	No	§129.111(c)
300	AZO Scrap System	Neg.	No	§129.111(c)
301	Misc. Raw Material Handling	Neg.	No	§129.111(c)
Misc.	Parts Washers	Neg.	No	§129.111(c)

The RACT II determination/requirements can be found at the following link: EPA Approved Pennsylvania Source-Specific Requirements | US EPA (https://www.epa.gov/sips-pa/epa-approved-pennsylvania-source-specific-requirements.)

A case-by-case RACT analysis involves an assessment of the applicable control technologies capable of reducing emissions of a pollutant and are conducted using a “top-down” approach that considers technical feasibility and economic, environmental, and energy impacts. A case-by-case RACT analysis consists of five steps:

1.) Identification of available control technologies;
2.) Elimination of technically infeasible options;
3.) Ranking of the remaining control technologies by control effectiveness;
4.) Evaluation of the economic, environmental, and energy impacts of technically feasible control technologies; and
5.) Identification of RACT.

The analysis conducted by the applicant for RACT II included this top-down approach. The applicant referenced the document “Survey of Control Technologies for Low Concentration Organic Vapor Gas Streams” (EPA-456/R-95-003, 1995) and stack tests conducted at the facility to indicate that the facility had low-VOC concentrating streams. The review included looking at VOC control technologies for the three calender lines and two embosser/laminator lines:

- Fixed-Bed Carbon Adsorber with Steam Regeneration
- Nonregenerative Adsorption (Carbon Canister Adsorber with Carbon Replacement/Canister Replacement)
- Regenerative Thermal Oxidizer (RTO)
- Recuperative Thermal Oxidizer
- Catalytic Oxidizer – Packed Bed
- Catalytic Oxidizer – Monolith
- Catalytic Oxidizer – Fluidized Bed

The Department's review included a review of the EPA's RACT/BACT/LAER Clearinghouse. The cost analysis was based on EPA's 2018 Air Pollution Cost Control Manual (APCCM). A vendor estimate for carbon adsorption and safety data sheets were also included in the analysis. Carbon canisters adsorbers were considered technically infeasible, and the other control technologies including fixed-bed carbon adsorbers and various types of thermal oxidizers and catalytic oxidizers were ruled out based on economic costs.

For the RACT III requirements under 25 Pa. Code §129.114(i)(1)(i)(A), the facility conducted a search for any new air pollution control devices, control technologies, or techniques available using the following sources of information:

1.) US EPA RACT/BACT (Best Available Control Technology)/LAER (Lowest Achievable Emission Rate) (Clearinghouse (RBLC)
2.) US EPA Clean Air Technology Center (CATC) Air Pollution Technology Fact Sheets (FS) and Technical Bulletins (TB)
3.) US EPA CATC Air Pollution Technical Reports
4.) US EPA CATC/CTC Information Bulletins and Newsletters

BACT and LAER are determined on a case-by-case basis, usually by State or local permitting agencies. EPA established the RACT/BACT/LAER Clearinghouse, or RBLC, to provide a central data base of air pollution technology information (including past RACT, BACT, and LAER decisions contained in NSR permits) to promote the sharing of information among permitting agencies and to aid in future case-by-case determinations.

The most recent CATC Air Pollution Technical Reports listed on EPA's website is dated 2010. Thus, no new CATC Air Pollution Technical Report has been published since the facility was issued a RACT II permit on February 6, 2020.

The most recent CATC/CTC information bulletin and newsletter listed on EPA's website is dated back to 1998. Thus, no new CATC/CTC information bulletin and newsletter has been published since the facility was issued the RACT II permit.

All of the above control technologies were evaluated in the previously submitted and reviewed RACT II application. There is no apparent new pollutant specific air cleaning device, air pollution control technology, or technique available for additional control of these processes. For this analysis, control technologies were evaluated for the three Calender Lines and the two Embosser/Laminator Lines that are subject to case-by-case RACT determinations.

Good operating practices was considered the base scenario for the case-by-case RACT evaluations. Examples of good operating practices as a method of controlling VOC emissions include maintaining optimum combustion efficiency, operating in accordance with the manufacturer's specifications, and/or implementing appropriate maintenance procedures as needed, among others.

For this analysis, cost estimates were provided from the EPA's "Air Pollution Cost Control Manual" (APCCM) 7th Edition. Specific inputs from Omnova that differed from the APCCM default values included waste gas flowrates, VOC emission rates, electricity and natural gas prices, and operator and maintenance labor rates, among others. Economic analysis results of each technically feasible control technology are shown below in Table II for the three Calender Lines and Table III for the two Embosser/Laminator Lines.

At this time, the Department does not believe that there are any new control technologies or significant changes to the technical capability of the existing technology.

Table III:

Cost Effectiveness for Calender Lines 1, 2, & 4

VOC Control Efficiency Ranking by Cost Effectiveness	Control Technology	Number of Units Required[b]	Estimated Control Efficiency	Total Annual Cost per Control Unit ($/yr)[a]	Annual Quantity of VOC Removed per Control Unit (TPY)	2018 Control Cost Effectiveness per Control Unit ($/ton removed)[a]	2018 Total Control Cost Effectiveness ($/ton removed)[a]	2022 Control Cost Effectiveness per Control Unit ($/ton removed)[c]	2022 Total Control Cost Effectiveness ($/ton removed)[c]
1	Fixed-Bed Carbon Adsorber with Steam Regeneration	3	98%	$289,437	34.00	$8,438.27	$25,314.81	$12,379	$37,137
2	Fixed-Bed Carbon Adsorber with Steam Regeneration	1	98%	$908,826	103.00	$8,831.98	$8,831.98	$12,957	$12,957
3	Regenerative Thermal Oxidizer	1	99%	$1,237,111	105.00	$11,785.00	$11,785.00	$17,289	$17,289
4	Carbon Canister Adsorber with Carbon Replacement	3	98%	$443,417	34.30	$12,927.00	$38,781.00	$18,964	$56,892
5	Carbon Canister Adsorber with Canister Replacement	3	98%	$502,615	34.00	$14,653.26	$43,959.78	$21,496	$64,489
6	Regenerative Thermal Oxidizer	3	99%	$519,069	35.00	$14,834.00	$44,502.00	$21,761	$65,284
7	Catalytic Oxidizer – Fixed Bed	3	99%	$1,818,935	35.00	$51,982.00	$155,946.00	$76,258	$228,773
8	Catalytic Oxidizer - Monolith	3	99%	$1,818,935	35.00	$51,982.00	$155,946.00	$76,258	$228,773
9	Recuperative Thermal Oxidizer	3	99%	$3,193,088	35.00	$91,253.00	$273,759.00	$133,868	$401,604

[a]Values are in 2018 dollars.

[b]Indicates whether a single control is used for all three lines or if each line was evaluated with its own individual control device.

[c]2022 dollars based on Chemical Engineering Plant Cost Index (CEPCI) ratio of the 567.5 CEPCI in 2018 to 832.6 CEPCI in 2022 for a ratio of 1.467.

Table IV:

Cost Effectiveness for Embosser/Laminator Lines 1 & 2

VOC Control Efficiency Ranking by Cost Effectiveness	Control Technology	Number of Units Required[b]	Estimated Control Efficiency	Total Annual Cost per Control Unit ($/yr)[a]	Annual Quantity of VOC Removed (TPY)	2018 Control Cost Effectiveness per Control Unit ($/ton removed)[a]	2018 Total Control Cost Effectiveness ($/ton removed)[a]	2022 Control Cost Effectiveness per Control Unit ($/ton removed)[c]	2022 Total Control Cost Effectiveness ($/ton removed)[c]
1	Fixed-Bed Carbon Adsorber with Steam Regeneration	1	98%	$147,130	8.0	$18,771.58	$18,771.58	$27,538	$40,398
2	Regenerative Thermal Oxidizer	1	99%	$318,743	8.0	$39,806.00	$39,806.00	$58,395	$85,666
3	Catalytic Oxidizer – Fixed Bed	1	99%	$932,095	8.0	$116,404.00	$116,404.00	$170,765	$250,512
4	Catalytic Oxidizer – Monolith	1	99%	$932,095	8.0	$116,404.00	$116,404.00	$170,765	$250,512
5	Catalytic Oxidizer – Fluidized Bed	1	99%	$956,120	8.0	$119,404.00	$119,404.00	$175,166	$256,968
6	Recuperative Thermal Oxidizer	1	99%	$1,576,495	8.0	$196,879.00	$196,879.00	$288,821	$423,701

[a]Values are in 2018 dollars.

[b]Indicates whether a single control is used for all three lines or if each line was evaluated with its own individual control device.

[c]2022 dollars based on Chemical Engineering Plant Cost Index (CEPCI) ratio of the 567.5 CEPCI in 2018 to 832.6 CEPCI in 2022 for a ratio of 1.467.

In accordance with 25 Pa. Code §129.114(i)(1)(i), an evaluation of each economic feasibility analysis summarized in the above tables demonstrates that the cost effectiveness for control remains equal to or greater than $12,000 per ton of VOC emissions reduced.

III.) Conclusion

The Department has analyzed the applicant's proposal for considering RACT II requirements as RACT III and also performed an independent analysis. Based on the information provided by the applicant of the facility and independently verified by the Department, the Department has determined that the RACT II requirements satisfy the RACT III requirements. The RACT III requirements are identical to the RACT II requirements and are as stringent as RACT II.

cc: SWRO, 65-00207
Pittsburgh District (T. Norris)
Central Office (OnBase)